INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 1993	**Park:** Shenandoah NP
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No co-investigators

Permit#:
SHEN1993AGPV

Park-assigned Study Id. #:
unknown

Project Title:
Analyzing Long-Term Ecological Monitoring Data to Determine Benthic Macroinvertebrate Community Responses to Stream Acidification in Shenandoah National Park

Permit Start Date: Jan 01, 1998	**Permit Expiration Date** Jan 01, 1998
Study Start Date: Jan 01, 1992	**Study End Date** Jan 01, 1995

Study Status:
Completed

Activity Type:
Other

Subject/Discipline:
Invertebrates (Insects, Other)

Objectives:
1) Conduct a thorough literature review to catagorize all benthic macroinvertebrate taxa that occur in SNP according to their acid sensitivity.;2) Use appropriate statistical techniques to analyze all data in LTEMS aquatic component (8 years of data by end of proposed study) for temporal or spatial differences in the benthic macroinvertebrate community caused by stream acidification.;3) Determine which measures of the benthic macroinvertebrate community and which statistical analyses are useful for detecting changes caused by stream acidification in SNP.;4) Interact with investigators working on the concurrent fish community study and provide benthic macroinvertebrate data that are needed to interpret fish results.;5) Assist Park Service personnel with reviewing current LTEMS aquatic component, determining any modifications that should be made, and implementing those modifications.;6) Provide advanced training to SNP resource managers in the analysis and interpretation of benthic macroinvertebrate data.

Findings and Status:
Preliminary results thus far indicate that there are no differences in the communities at the upper and lower elevations on the same stream, and there are no differences between spring and summer quarters. However, the macroinvertebrate communities do appear to be different in the LTEMS streams with thw lowest pH (Paine Run and Twomile Run). These results are very encouraging for using the LTEMS macroinvertebrate component for resource management in SNP, because it means that the techniques are sensitive enough to detect changes. Parameters that appear useful include taxa richness, EPT richness, diversity index, and similarity index. Both univariate and multivariate techniques have been used on the data, and both appear to be meaningful.

For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?
No

Funding provided this reporting year by NPS: 9500	**Funding provided this reporting year by other sources:** 0

Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or

college	
Full name of college or university:	**Annual funding provided by NPS to university or college this reporting year:**
n/a	0